THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte FRANZ HUGO

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Appeal No. 96-1597
Application No. 08/152,523[1]

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ON BRIEF

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Before McCANDLISH, ***Senior Administrative Patent Judge***, ABRAMS, and GARRIS, ***Administrative Patent Judges***.

ABRAMS, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1-16, which constitute all of the claims of record in the application.

[1] Application for patent filed November 16, 1993.

The appellant's invention is directed to a method (claims 1-8) and apparatus (claims 9-16) for the directed solidification of molten metal. The claims on appeal have been reproduced in an appendix to the Brief.

THE APPLIED REFERENCES

Matsunaga et al. (Matsunaga)	3,635,279	Jan. 18, 1972
Salkeld	4,108,236	Aug. 22, 1978

THE REJECTION

Claims 1-16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Salkeld in view of Matsunaga.

The rejection is explained in Paper No. 8 (the final rejection).

The arguments of the appellant in opposition to the positions taken by the examiner are set forth in the Brief and the Reply Brief.

OPINION

In reaching our decision on the issues raised in this appeal, we have carefully assessed the claims, the prior art

applied against the claims, and the respective views of the examiner and the appellant as set forth in the Answer and the Briefs. As a result of our review, we have determined that the rejection of claims 1-8 and 10-15 should not be sustained, while the rejection of claims 9 and 16 should be sustained. Our reasoning in support of this conclusion follows.

It is axiomatic that the test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima facie* case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. ***Ex parte Clapp***, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, ***Uniroyal ,Inc. V. Rudkin-Wiley***

Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1052 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988).

Independent claim 1 is directed to a method of solidifying molten metal. The opening steps of the claim provide that the molten metal be located in a mold in a heating chamber that has an open bottom, a molten bath of quenching material located below the heating chamber, and a thermal insulating layer on the molten bath of quenching liquid. The final step of the claim recites that the mold is moved out of the heating chamber, through the thermal insulating layer, and into the molten bath of quenching metal. In addition, the claim requires, prior to the final step, the step of

> moving said molten bath of quenching material relative to said heating chamber so that said open bottom is closed by said thermal insulating layer.

The importance of this step to the inventive method has been explained on pages 2 and 3 of the specification.

It is the examiner's position that "Salkeld substantially shows the claimed inventive [*sic*, invention] except [for] the type of insulative material used" which, however, is taught by Matsunaga, and that it would have been obvious to one of

ordinary skill in the art to modify Salkeld to meet the terms of claim 1 in view of Matsunaga (Paper No. 8, pages 2 and 3). In response to the appellant's argument that the step recited above is not taught by either reference, the examiner has stated that since the Matsunaga drawing shows that the bottom surface of the heating chamber is in contact with the insulating layer atop the quenching metal bath,

> it would have been obvious to provide a movable support for the heating chamber such that the position of the bottom opening can be adjusted in according [*sic*, accordance] with the bath level (Paper No. 8, page 4).

We do not agree.

Salkeld does not teach that the heating chamber is movable with respect to the tank that holds the quenching metal, but rather that these two elements are fixedly mounted with respect to one another (see column 2, lines 42-45). Moreover, Salkeld does not set forth any concerns regarding the level of the molten bath of quenching metal and, from our perspective, the method and apparatus disclosed in this reference would accommodate a variance in such level merely by adjusting the distance of the downward movement of the mold into the bath. Thus, in our opinion, no support for the examiner's position is found in this reference. Since Matsunaga does not even disclose a heating chamber, there is no support here, either. We therefore fail to perceive any teaching, suggestion or incentive in either reference which would have led one of ordinary skill in the art to modify the Salkeld system so that the molten bath of quenching material is moved with respect to the heating chamber at all, much less that it would perform the step of moving the molten bath relative to the heating chamber in the manner required by claim 1.

The combined teachings of Salkeld and Matsunaga therefore fail to establish a *prima facie* case of obviousness with respect to the subject matter of claim 1 or, it follows, of claims 2-8, which depend therefrom.

Independent apparatus claim 9 also stands rejected on the basis of Salkeld and Matsunaga. Claim 9 requires the presence of a heating chamber having an open bottom, a crucible containing a molten quenching fluid beneath the heating chamber, a thermal insulating layer floating on the quenching material and in contact with the bottom of the heating chamber, and a mold movable vertically from the heating chamber through the insulating layer and into the quenching material. Our understanding of the sole argument presented by the appellant with regard to this claim is that it would not have been obvious to substitute the thermal insulating layer of Matsunaga for the baffle of Salkeld (Brief, page 7). However, this argument is predicated upon a limitation that is not present in the claims, and therefore cannot be persuasive. See ***In re Self,*** 671 F.2d 1344, 1348, 213 USPQ 1, 5 (CCPA 1982). Although the examiner has explained the rejection in terms of two

references, Salkeld discloses the required thermal insulating layer and thus in and of itself contradicts the appellant's position. Matsunaga is merely confirmatory of the presence of this feature in the art.

Nevertheless, we find ourselves in agreement with the examiner that it would have been obvious to one of ordinary skill in the art to modify Salkeld by replacing the disclosed thermal insulating layer with the one taught by Matsunaga. Salkeld discloses a heat insulating baffle that floats on the surface of the quenching (cooling) bath. Its purpose is to prevent heat from escaping in that, as explicitly taught by Salkeld, it fits "snuggly" within the walls of the quenching bath container and is provided with openings through which the mold descends into the bath which are "contoured" to "conform relatively closely to the outer walls of the article molds" (column 3, lines 1-15). Matsunaga also discloses a heat insulating baffle covering the surface of the molten bath, which comprises salts or a slag (column 4, line 43) and which, as can be discerned from the drawings, closely adheres to the contours of the mold as it passes through into the molten bath. It is our opinion that one of ordinary skill in the art would

have been motivated to substitute the insulating layer of Matsunaga for that of Salkeld, suggestion being found in the advantage of providing an even more snug fit about the mold so as to more effectively prevent heat from escaping from the molten bath. In this regard, a conclusion of obviousness may be made from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference (see ***In re Bozek***, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969)), with skill being presumed on the part of the artisan, rather than the lack thereof (see ***In re Sovish***, 769 F.2d 738, 742, 226 USPQ 771, 774 (Fed. Cir. 1985)). The applied references establish a *prima facie* case of obviousness with regard to the subject matter of claim 9. Since the appellant has elected allow claim 16 to stand or fall with claim 9, this conclusion applies to claim 16 also.

Claim 10 adds to claim 9 the requirement that there be a mold holding frame which is movable vertically and is configured for immersion in the molten quenching metal, with “the bottom of said heating chamber limiting upward vertical

movement of said holding frame." The appellant has argued that the quoted feature is not taught in the references, to which the examiner has not directly responded. The basis for the examiner's position is not evident to us. We therefore conclude that a *prima facie* case of obviousness is lacking with regard to the subject matter recited in claim 10, as well as in claims 11-14, which are dependent therefrom.

We reach the same conclusion with respect to claim 15. This claim adds to claim 9 a side chamber to the main chamber in the crucible, and a spillway connecting the two so that the side chamber receives any overflow as a mold moves into the quenching material. Such a feature is not taught in the applied references, and we find a *prima facie* case of obviousness to be lacking here.

SUMMARY

The rejection of claims 1-8 and 10-15 is not sustained.

The rejection of claims 9 and 16 is sustained.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

HARRISON E. McCANDLISH Senior Administrative Patent Judge	)
NEAL E. ABRAMS Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
BRADLEY R. GARRIS Administrative Patent Judge	)

NEA/jlb

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